



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,047	12/10/2003	Hyuk Tark Kwon	AD7076 USNA	8995
23906 7590 07/25/2007 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			EXAMINER WOLLSCHLAGER, JEFFREY MICHAEL	
			ART UNIT 1732	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,047	Applicant(s) KWON, HYUK TARK	
	Examiner Jeff Wollschlager	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-8,10-12,29 and 31-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-8,10-12,29 and 31-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 17, 2007 has been entered.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Original claim 9 discloses "copolymers of ethylene and alpha, beta-unsaturated carboxylic acids and/or their derivatives". This disclosure in the original claims provided the support for the following amendment to the claims: "derivatives of copolymers of ethylene and alpha, beta-unsaturated carboxylic acids". However, the specification only discloses "derivatives" of the carboxylic acid employed to form the copolymer. Nonetheless, the original recitation in claim 9 is broader in scope than that found in the specification, but does provide support for the claim amendment.

The examiner notes that the recitation ""derivatives of copolymers of ethylene and alpha, beta-unsaturated carboxylic acids" has been given its broadest reasonable interpretation and has not been limited to carboxylic acid derivatives used to form the copolymer, but to derivatives of the copolymer.

Claim Objections

Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 recites the first thermoplastic is a copolymer of ethylene and alpha, beta-unsaturated carboxylic acid. Claim 10 recites the first thermoplastic is a copolymer of ethylene and unsaturated carboxylic acids. The copolymer of claim 10 is broader in scope than the copolymer recited in claim 1.

Claim 49 is objected to because of the following informalities: The recitation, "the first thermoplastic polymer is an ionomer....acid copolymers" is duplicated in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 40 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation, "the blow-pin" lacks antecedent basis in the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1732

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 6-8, 29, 31, 32, 36, 43-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuya et al. (US 3,819,792) in view of Suzuki et al. (US 4,079,850) and either of Rainwater et al. (US 3,233,416) or Chesser (US 3,450,805).

Regarding claims 1, 3 and 4, Katsuya et al. teach a method of producing a double walled blow molded thermoplastic article, such as bottle (col. 2, lines 69-73), comprising an outer layer of a mixture/blend of olefin homopolymer or copolymer and an ethylene copolymer containing a zinc salt of methacrylic acid and an inner layer of polyamide (Abstract; col. 6, lines 33-36; Table). Katsuya et al. disclose the outer wall has a thickness of about 1.0 mm (col. 6, lines 30-32). Katsuya et al. disclose co-extruding the layers into a blow mold, but do not provide details on the blow molding method (col. 4, lines 23-42).

However, Suzuki et al., teach a method for manufacturing a multilayer container comprising: heating each of at least two thermoplastic polymers to a temperature above the melt temperature of each to obtain a homogeneous melt of each of the at least two polymers; co-extruding the at least two thermoplastic polymers through a co-extrusion blow molding head into an open mold; using the extrusion blow molding machine to blow mold the at least two thermoplastic materials to form a blow molded structure having an internal surface and an external surface; a mold having a pinch off area and dual pinching means for pinching the outer layer in a manner such that the outer layer forces the at least one other layer out of the pinch off area (Abstract; Figures 2-A and 2-B; col. 1, lines 64-col. 2, line 3; col. 2, lines 10-30 and 50-67; col. 4, lines 2-19 and 49-67). Suzuki et al. also disclose a mold temperature of 12 °C (col. 10, lines 15-18)

Art Unit: 1732

Furthermore, each of Rainwater et al. (col. 1, lines 8-46; col. 2, lines 14-18 and lines 66-70; col. 3, lines 37-42) and Chesser (Abstract; col. 1, lines 31-63; col. 2, lines 1-44; col. 3, lines 26-30 and 60-74) teach a method of blow molding articles where cold air is employed to blow the article while simultaneously providing a means of cooling the blow molded structure

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the blow molding teachings of Suzuki et al. and either of Rainwater et al. or Chesser to have produced the blow molded article taught by Katsuya et al. since Suzuki et al. disclose their method assists with fusion bonding of the pinched off portions (col. 2, lines 10-20) and Rainwater et al. disclose that cold air reduces scrap caused by condensation on the wall of the mold (col. 3, lines 1-3) and promotes rapid cooling of the article (col. 1, lines 8-21)

The examiner submits that a blend of a first polymer (e.g. a copolymer of ethylene and an unsaturated carboxylic acid, SurlynTM, with another polymer (e.g. olefin), as disclosed by Kasuya et al., is reasonably considered to be a derivative of the first polymer. Therefore, the claimed first thermoplastic is reasonably met by the teaching of Katsuya. The examiner further submits that the polymers employed by Katsuya et al. are intrinsically, or at least implicitly, gel-free and homogeneous.

As to claims 6-8, Rainwater et al. employ blowing air at a temperature of about 20 °F (col. 3, lines 41-43).

As to claim 29, the examiner notes that unpolished mold, for example, are conventional in the art and that molds disclosed intrinsically have some degree of surface imperfections. Furthermore, it is well known in the art to provide a mold with a roughened surface in applications where a textured external article is desired.

Art Unit: 1732

As to claims 31, Rainwater allow for the blowing and cooling gas to escape from the inside of the mold (col. 2, lines 14-19; col. 4, lines 66-75).

As to claim 32, Rainwater et al. (Figure 3) and Chesser (Figure 2) employ a blow-pin/nozzle for discharging the cold gas into the inner cavity of the parison. The examiner notes that such a claimed configuration is well known in the art and that many equivalent alternative means of injecting blow gas into a parison are conventionally employed.

As to claim 36, Katsuya et al. employ a polyamide as the inner layer (Abstract; col. 6, lines 34-36).

As to claim 43 and 44, Katsuya et al. exemplify an outer wall thickness of 1 mm (col. 6, lines 30-32). This is reasonably interpreted to be about 1.5 mm. Further, one having ordinary skill would have readily selected and optimized the thickness of the wall depending on the intended application.

As to claims 45-47, Rainwater et al. (col. 1, lines 8-46; col. 2, lines 14-18 and lines 66-70; col. 3, lines 37-42) and Chesser (Abstract; col. 1, lines 31-63; col. 2, lines 1-44; col. 3, lines 26-30 and 60-74)

Claims 1, 3, 4, 6-8, 10-12, 29, 31, 32, 36-39, and 42-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Domine et al. (US 2004/0161623) in view of Suzuki et al. (US 4,079,850) and either of Rainwater et al. (US 3,233,416) or Chesser (US 3,450,805).

Regarding claims 1, 3, 4 and 48, Domine et al. teach ionomer laminates and articles formed from ionomer laminates (Abstract; Figure 1). Domine et al. disclose the laminates may be formed by blow molding methods (paragraph [0007]; Figure 8) into containers (paragraphs [0097, 0124, 0136]). Domine et al. also disclose the thickness of the ionomer outer layer may be up to 6000 um/6 mm (paragraph [0036]). Domine et al. also disclose a blow mold

Art Unit: 1732

temperature as low as 10 °C [paragraph [0104]]. A wide variety of ionomers are disclosed including ethylene methacrylic acid copolymer ionomers (paragraph [0037]). Domine et al. disclose materials such as polypropylene, polyethylene and polycarbonates can form the layer behind the ionomer layer (paragraph [0052]). Domine et al. do not provide details of the blow molding method (paragraph [0097]).

However, Suzuki et al., teach a method for manufacturing a multilayer container comprising: heating each of at least two thermoplastic polymers to a temperature above the melt temperature of each to obtain a homogeneous melt of each of the at least two polymers; co-extruding the at least two thermoplastic polymers through a co-extrusion blow molding head into an open mold; using the extrusion blow molding machine to blow mold the at least two thermoplastic materials to form a blow molded structure having an internal surface and an external surface; a mold having a pinch off area and dual pinching means for pinching the outer layer in a manner such that the outer layer forces the at least one other layer out of the pinch off area (Abstract; Figures 2-A and 2-B; col. 1, lines 64-col. 2, line 3; col. 2, lines 10-30 and 50-67; col. 4, lines 2-19 and 49-67). Suzuki et al. also disclose a mold temperature of 12 °C (col. 10, lines 15-18)

Furthermore, each of Rainwater et al. (col. 1, lines 8-46; col. 2, lines 14-18 and lines 66-70; col. 3, lines 37-42) and Chesser (Abstract; col. 1, lines 31-63; col. 2, lines 1-44; col. 3, lines 26-30 and 60-74) teach a method of blow molding articles where cold air is employed to blow the article while simultaneously providing a means of cooling the blow molded structure

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the blow molding teachings of Suzuki et al. and either of Rainwater et al. or Chesser to have produced the blow molded article taught by Domine et al. since Suzuki et al. disclose their method assists with fusion bonding of the

Art Unit: 1732

pinched off portions (col. 2, lines 10-20) and Rainwater et al. disclose that cold air reduces scrap caused by condensation on the wall of the mold (col. 3, lines 1-3) and promotes rapid cooling of the article (col. 1, lines 8-21).

As to claims 6-8, Rainwater et al. employ blowing air at a temperature of about 20 °F (col. 3, lines 41-43).

As to claims 10 and 11, Domine et al. disclose employment of an ionomer (paragraph [0057]).

As to claim 12, Suzuki et al. disclose the claimed pinched shape (Figure 2B).

As to claim 29, the examiner notes that unpolished mold, for example, are conventional in the art and that molds disclosed intrinsically have some degree of surface imperfections. Furthermore, it is well known in the art to provide a mold with a roughened surface in applications where a textured external article is desired.

As to claim 31, Rainwater allow for the blowing and cooling gas to escape from the inside of the mold (col. 2, lines 14-19; col. 4, lines 66-75).

As to claim 32, Rainwater et al. (Figure 3) and Chesser (Figure 2) employ a blow-pin/nozzle for discharging the cold gas into the inner cavity of the parison. The examiner notes that such a claimed configuration is well known in the art and that many equivalent alternative means of injecting blow gas into a parison are conventionally employed.

As to claims 36-39, Domine et al. (paragraph [0052]) and Suzuki et al. (col. 3, lines 26-47; col. 4, lines 48-66; col. 5, lines 1-51) disclose a variety of inner layers meeting the claim limitations.

As to claim 42, Domine et al. disclose an ionomer as the outer layer (Figure 1; Abstract; paragraph [0037]).

Art Unit: 1732

As to claims 43 and 44, Domine et al disclose an ionomer layer thickness range of 25 um to 6000 um depending on the application (paragraph [0036]).

As to claims 45-47, Rainwater et al. (col. 1, lines 8-46; col. 2, lines 14-18 and lines 66-70; col. 3, lines 37-42) and Chesser (Abstract; col. 1, lines 31-63; col. 2, lines 1-44; col. 3, lines 26-30 and 60-74) disclose cold air as the gas.

As to claim 49, Domine et al. disclose the claimed outer layer thicknesses and the ionomeric outer layer (paragraph [0036]). Domine et al. (paragraph [0052]) and Suzuki et al. disclose the claimed inner layers. Suzuki et al. (col. 10, lines 15-17) and Domine et al. (paragraph [0104]) disclose mold temperatures within the claimed range. Rainwater et al. disclose cold blow air meeting the cold discharge temperature limitation (col. 1, lines 8-46; col. 2, lines 14-18 and lines 66-70; col. 3, lines 37-42).

As to claim 50, Suzuki et al. (col. 3, lines 26-47; col. 4, lines 48-66; col. 5, lines 1-51) and Domine et al. (paragraph [0052]) disclose the claimed second thermoplastic polymers.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuya et al. (3,819,792) in view of Suzuki et al. (US 4,079,850) and either of Rainwater et al. (US 3,233,416) or Chesser (US 3,450,805), as applied to claims 1, 3, 4, 6-8, 29, 31, 32, 36, 43-47 above, and further in view of Sugawara et al. (6,303,071).

As to claim 29, the combination teaches the method of claim 29 as set forth above.

In an alternative interpretation of the claim, Katsuya et al. do not expressly teach an active step of roughening the surface of the mold. However, Sugawara et al. teach an analogous method where they emboss/roughen the surface of the mold in order to produce a desired surface feature on the molded surface (col. 2, lines 53-59 and col. 8, lines 61-67).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to modify the method of Katsuya et al. with the embossed/roughened mold surface taught by Sugawara et al. for the purpose of producing a desired surface feature on the molded structure.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Domine et al. (US 2004/0161623) in view of Suzuki et al. (US 4,079,850) and either of Rainwater et al. (US 3,233,416) or Chesser (US 3,450,805), as applied to claims 1, 3, 4, 6-8, 10-12, 29, 31, 32, 36-39, and 42-50 above, and further in view of Sugawara et al. (6,303,071).

As to claim 29, the combination teaches the method of claim 29 as set forth above.

In an alternative interpretation of the claim, Domine et al. do not expressly teach an active step of roughening the surface of the mold. However, Sugawara et al. teach an analogous method where they emboss/roughen the surface of the mold in order to produce a desired surface feature on the molded surface (col. 2, lines 53-59 and col. 8, lines 61-67).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to modify the method of Domine et al. with the embossed/roughened mold surface taught by Sugawara et al. for the purpose of producing a desired surface feature on the molded structure.

Claims 33-35, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuya et al. (3,819,792) in view of Suzuki et al. (US 4,079,850) and either of Rainwater

Art Unit: 1732

et al. (US 3,233,416) or Chesser (US 3,450,805), as applied to claims 1,3, 4, 6-8, 29, 31, 32, 36, 43-47, and further in view of Wechsler (US 3,114,596).

As to claims 33-35, 40 and 41, the combination teaches the method as set forth above. Kasuya et al. do not disclose the claimed blow pin structures. However, Wechsler discloses water-jacketed blow pins and blow pins having apertures/skirts/channels (col. 1, lines 20-29 and 32-42; col. 2, lines 3-8). Furthermore, the apertures employed by Wechsler are reasonably understood to provide a rough surface. Still more, the examiner notes that the claimed structural limitations of the blow pin are known in the art and do not appear to effect the process in a manipulative sense.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the blow pins disclosed by Wechsler while practicing the method of Katsuya et al. for the purpose, as taught by Wechsler, of further improving cycle and product appearance (col. 1, lines 17-30).

Claims 33-35, 40, 41 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Domine et al. (US 2004/0161623) in view of Suzuki et al. (US 4,079,850) and either of Rainwater et al. (US 3,233,416) or Chesser (US 3,450,805) 1, 3, 4, 6-8, 10-12, 29, 31, 32, 36-39, and 42-50 and further in view of Wechsler (US 3,114,596).

As to claims 33-35, 40, 41, 51 and 52, the combination teaches the method as set forth above. Domine et al. do not disclose the claimed blow pin structures. However, Wechsler discloses water-jacketed blow pins and blow pins having apertures/skirts/channels (col. 1, lines 20-29 and 32-42; col. 2, lines 3-8). Furthermore, the apertures employed by Wechsler are reasonably understood to provide a rough surface. Still more, the examiner notes that the

Art Unit: 1732

claimed structural limitations of the blow pin are known in the art and do not appear to effect the process in a manipulative sense.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the blow pins disclosed by Wechsler while practicing the method of Domine et al. for the purpose, as taught by Wechsler, of further improving cycle and product appearance (col. 1, lines 17-30).

As to claim 53, Suzuki et al. (col. 3, lines 26-47; col. 4, lines 48-66; col. 5, lines 1-51) and Domine et al. (paragraph [0052]) disclose the claimed second thermoplastic polymers.

As to claim 54, Rainwater et al. disclose the blow temperature is about 20 °F and that various pressures may be employed as desired (col. 30-42).

Response to Arguments

Applicant's arguments filed April 17, 2007 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager
Examiner
Art Unit 1732

July 20, 2007

af
CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER
7/20/07